

THE JOURNAL OF THE SOCIETY OF AUTOMOTIVE ENGINEERS

INDEX TO VOLUME VIII, JANUARY-JUNE, 1921

January	PAGES	1-74	National Advisory Committee's 5-ft. wind tunnel	489	Alcohol	
February	75-204		Photographic recording of small motions	50	Carburetion of	279, 328
March	205-292		Propeller design	419, 467	Conditions necessary for proper use of	330
April	293-388		Propeller stresses	476	Developing a tractor engine	328
May	389-516		Propeller testing	477	ALDEN, H W, ON AUTOMOTIVE OBLIGATIONS TOWARD HIGHWAY DEVELOPMENT	161, 425
June	517-620		Propeller theories and aerodynamics	468	ALDEN, H W, ON ENGINEER'S PLACE IN AUTOMOTIVE INDUSTRY	503
			Reversible propellers	473		
			Steel propellers	471		
			Transportation of the immediate future	423		
A						
Acceleration			Agricultural Implements		Alloys	
And other tests of engines	4		Motor cultivator	505	Brinell tests of bearing	152
Tests of steam truck	159		Plowing speeds	277	Elevated-temperature compression tests of bearing	151
			Agriculture in China	403	High-temperature properties of white-metal bearing	149
Accidents			Agriculture		Lead in white-metal bearing	154
Motor vehicle	486		Basic industry	506	Long-period heating of bearing	154
Number of fatal	256		County agent	506	Preparation of	149
Activities of Sections, S A E	71, 230, 380, 510, 605		Education and	506	Aluminum for various parts of automobile	396
Addresses at annual dinner	249		Effect of war	506	Aluminum pistons (Frank Jardine and Ferdinand Jehle)	397
			In China	511		
Addresses			Tractor on corn-belt farms	506	Aluminum	
Alden, H W	503		Use of machinery	528	Constant-clearance pistons	104
Beecroft, David	80, 249		Air and exhaust supercompression	199	Pistons	397
Cowle, R E M	249		Aircraft laws	199	Use for automobile parts	396
Crane, H M	502		Aircraft		American aeronautic pilots	221
Davidson, Prof J B	588		Development	100	American Engineering Standards Committee, representatives	12
Farm Power dinner	280, 588		Impediments to commercial transport	565	American merchant marine	16
Kettering, C F	250		Laws	199	American technical schools	592
Moskovics, F E	504		Suggested business uses for	563	America's first airway	330
Of members desired	148		Air Mail operation and maintenance cost	122		
Roberts, George E	251		Air Mail Service			
Stackhouse, W H	590		Operation and maintenance cost	122	Annual Meeting, S A E	
Taber, L J	589		Progress	291	Discussion of papers	419
Utz, J G	504		Should be extended	569	Program announced	1
Vincent, J G, presidential	95		United States survey flight	134	Reviewed	75
Vincent, J G	505		Airplane stress analysis	53	Anti-freezing solutions	277
Adjustable-pitch propellers	473		Airplanes		Application of carriage experience to automobile construction	286
Administrative Committees, S A E			Armored	24	Application of steam power to an automobile truck (L L Scott)	155, 601
Personnel	200		Compression ratio and thermal efficiency of engines	266, 424	Armament development, problems of	336
Work of	95		Developed during the war	18	Army, educational system of	513
Aerial transportation as a business proposition (G L Martin)	347		Development of engines	336	Artillery automotive materiel, recent development of (Capt J B Haney)	375
Aerial transportation of the immediate future (R H Upson)	423, 593		Engines	20	Atomization of fuel at low temperatures, mechanical	26
Aerodynamics propeller theories and	468		Excellent condition of, on Alaskan expedition	229	Autoignition	215
Aeronautic handbook	96		Helicopter versus	126	Automobile body construction (P E Stone)	404
Aeronautic propeller design (F W Caldwell)	419, 467		Landing fields	567	Automobile exhaust gases and vehicular-tunnel ventilation (A C Fieldner, A A Straub and G W Jones)	295, 450
Aeronautic Division, S A E			Landing in thick weather	568	Automobiles aid all occupations	539
Personnel	200, 290, 294		New wing designs	274		
Report at annual meeting	169		Pulitzer trophy race	13	Automobiles	
Result of letter ballot	382		Safe and reliable service	565	Aid all occupations	539
Aeronautic Session			Some experiments on thick wings with flaps	271, 380, 421	Aluminum for various parts	396
Program for annual meeting announced	1		Statical longitudinal stability of	128	Aluminum pistons in engines	397
Review of, at annual meeting	76		Stress analysis	53	Application of carriage experience	286
Aeronautics			Tested in wind tunnel	495	Body construction	404
Adjustable-pitch and reversible propellers	473		Tests of four master wing sections	271	Body engineer and his relation to the industry	365, 436
American pilots	221		Weather and navigation aids	567	Body lines	124
America's first airway	330		Air standard efficiencies for engines	525	Can body weight be reduced? (C A Heergelst)	285, 432
Micarta and steel propellers	471		Air-temperature regulation effects on fuel economy (R E Fielder)	119, 499	Characteristics with ignition on	327
Micarta propellers	471		Air transportation and the business man (V E Clark)	563	Chassis deflection	405
			Alaskan flying expedition (First-Lieut St Clair Streett)	222		

Chassis design for fuel economy	167	Fostering of commercial	250	BREED, H E, ON VARIABLE FACTORS IN	
Conflict between art and economy	366	Fundamental factors of transportation	593	HIGHWAY DESIGN	238, 425
Consequential advantages of weight reduction	396	Government aid	569	BUCKINGHAM, EARLE, ON INSPECTION AND	
Cooperation of the oil and industries	43	Hecter fuel and gasoline compared	168	TESTING IN INTERCHANGEABLE MANUFACTURE	57
Design of transmission and axle gears	390	Influence of war on commercial	140	Bureau of Standards fuel study, resume of (H C Dickinson)	450, 482
Development possibilities in construction	405	Inherent value of speed	595	BURNETT, R S, ON INTERNATIONAL BALL BEARING STANDARDIZATION	577
Dragging brakes	167	Insurance	348		
Elements of fuel economy	543	International civil organization	418		
Exhaust gases and vehicular-tunnel ventilation	295, 450	Liberty and motorcycle oil	220		
Heavy greases	167	Long-distance flight	208		
Instantaneous current and voltage values in a battery	319	Misdirected development	136		
Limitations in weight reduction	286	Pigeons in Naval	291		
Metal bodies and construction features	404	Problems of armament development	336		
Minor and general considerations	124	Questionable future developments	142		
Need for attention to details of body	367	Radio telephone	58		
Need for greater service accessibility in design	257, 598	Recent advances	18		
Need for researches on parts	255, 439	Recent progress in military	335		
Number of fatal accidents	256	Relation of military and commercial	25		
Passenger body-designing problems	306, 432	Reliability of air transportation	347		
Possibilities for improvement in current models	264	Start of Alaskan expedition	222		
Possible improvements suggested by survey	259	Terminals	348		
Prevailing body types	123	Time-value cargo classification	596		
Relative motion of parts	167	Transportation and the business man	563		
Safety lessons for drivers	12	Transportation of the immediate future	593		
Schools of body draftsmanship	437	Two classes of service	347		
Seasoning of wood for body	404				
Status of design for service accessibility	257				
Style in bodies	123, 434				
Suggested rating rule for racing	118, 440				
Underlying principles of electrical ignition	570				
Utilization of present fuel	26				
Automotive obligations toward highway development (H W Alden)	161, 425				
Automotive progress, milestone of	56				
Automotive radiators (K F Walker)	127				
Automotive Vehicles					
Application of steam power to	601				
Cooperation of, and oil industries	42				
Industrial problems	98				
Milestone of progress	56				
Obligations toward highway development	161, 425				
Possible fuel savings in engines	3				
Recent development of artillery materiel	375				
Utilization of present fuel	26				
Average composition of exhaust gases and completeness of combustion	302				
Aviation					
Aerial transportation as a business proposition	347				
Air mail operation and maintenance costs	122				
Air mail survey flight	134				
Airplane versus helicopter	126				
Alaskan expedition	222				
Alaskan expedition flying over Canada	224				
Alaskan expedition flying over mountains and glaciers	228				
Bad weather encountered on Alaskan expedition	227				
Civilian	45				
Commercial, in the eastern hemisphere	422				
Design requirements of commercial	135, 419				
Desirable future developments	143				
Development of commercial transportation	349				
Engine lubricating oil	220				
Equipment development	338				
Federal regulations	348				
Financial aspects of	568				
Forest Patrol	338				
	</				

INDEX TO VOLUME VIII

613

Comparison of ordinary wood with plywood	480	Short statement of actions	523	Effect of small percentages of lead	154
Compression and lubrication on current and voltage in battery, effect of	323	Two methods of producing turbulence	582	Effect of temperature of engine	322
Compression and the fuel problem	45	Cylindrical parts, fits for	230	Effect of tire sizes	168
Compression ratio and thermal efficiency of airplane engines (S W Sparrow)	266, 424			Effect of turbulence on flame propagation	579
		D		Effect of war on agriculture	506
Compression		Dangers of prosperity	253	Efficiency	
Effect of, on current and voltage in a battery	323	Data on Illinois tractors	487	Air standard for engines	525
Exhaust	528	Data sheets, S A E, March, 1921	542	Compression ratio and thermal, of airplane engines	266, 424
Fuel problem and	45	Davidson, Prof J B, address	588	Influence of air and fuel proportions on engine	553
Higher piston ratios	103	DAVISON, G C, ON COMMERCIAL MOTOR-BOATS AND THE DIESEL ENGINE	46	Mechanical, of engines with particular reference to part-load conditions	556
Ratio and thermal efficiency of airplane engines (S W Sparrow)	266, 424	Debt, world, and paper currency	229	Power transmission	552
Conditions necessary for proper use of alcohol	330	December Council Meeting	11	Volumetric of engine	122
Cone clutch	350	December refinery statistics	367	Einstein's theory appears well founded	318
Conference on traffic regulation	305	DEED, WILLIAM J, ON MOTORBOAT STANDARDIZATION FROM THE NAVAL-ARCHITECT'S VIEWPOINT	116	Electric drive and the steam engine	49
Consequential advantages of weight reduction (L H Pomeroy)	396	Depreciation	385		
Cooperation of the automotive and oil industries (C F Kettering)	43	Description of thermostat	120	Electrical Equipment Division, S A E	
Correct addresses of members	148	Design of piston	398	Activities	513, 606
Correcting road failures	164	Design of transmission and axle gears	390	Personnel	290
		Design requirements of commercial aviation (Grover C Loening)	135, 419	Report at annual meeting	175, 190
Costs		Desired manifold temperature	121	Result of letter ballot	382
Air mail operation and maintenance	122	Detonation		Electric Transportation Division, S A E	
First, of engines	46	Engine	241	Personnel	12
Council report at annual meeting	78	Further experiments	484	Report at annual meeting	174
		What is	483	Result of letter ballot	382
Council Meetings		Detroit house numbers changed	16	Electric Vehicle Division, S A E, personnel	200, 290
December, 1920	11	Developing an alcohol tractor engine	328	Electromagnetic theory	318
January, 1921	200	Development of airplane engines	336	Elements of automobile fuel economy (W S James)	543
February, 1921	208	Development of commercial aerial transportation	349	Employment, analysis of industrial	390
March, 1921	294	Development of industry	496	End point, high, of fuels	43
April, 1921	509, 603	Developments in transmission (Capt S Bramley-Moore)	350		
Cowie, R E M, address	249	DICKINSON, H C, ON POSSIBLE FUEL SAVINGS IN AUTOMOTIVE ENGINES	3	Engine Division, S A E	
Cracking processes	52	DICKINSON, H C, ON RESUME OF BUREAU OF STANDARDS FUEL STUDY	450, 482	Activities	512, 606
CRANE, H M, ON ENGINEERING AS A PROFESSION AND THE VALUE OF AN ENGINEERING EDUCATION	496	Dilution of crankcase oil (W F Parish)	231	Personnel	290, 603
CRANE, H M, ON ENGINEER'S PLACE IN AUTOMOTIVE INDUSTRY	502	Dinners		Report at annual meeting	178
CRANE, H M, ON SUGGESTED RATING RULE FOR RACING CARS	118, 440	Addresses at annual	249	Result of letter ballot	382
Crankcase conditions	231	Chicago, S A E	205	Engineer and his relation to the automotive industry, body (Kingston Forbes)	365, 436
Crankcase oil, dilution of (W F Parish)	231	Farm Power addresses	280, 588	Engineer should cooperate	505
Crude oil	56	Farm Power, S A E	277	Engineering analysis applied to truck selling (N J Ockerselder)	600
Crude oil production in 1920	409	Discrepancy between part and drawing in manufacture	57	Engineering as a profession and the value of an engineering education (H M Crane)	496
Crude rubber imports	270	Discussion of papers at the Chicago truck and tractor meeting	598	Engineering, leadership in conservation movement	508
CULLEN, T F, ON NEED FOR GREATER SERVICE ACCESSIBILITY IN CAR DESIGN	257, 598	Distillation of shale	63	Engineering museum	69
Cup grease specification	221	Drainage investigations	344	Engineering, two forms of	504
Currency, world debt and paper	229	Drainage problem of roads	341	Engineering viewpoint, fuel problem in relation to (A L Nelson)	101, 450
Current and voltage values in a battery, instantaneous (G W Vinal and C L Snyder)	319	Duties of a piston	397	Engineer's place depends on himself	503
Current standardization work	381, 512, 606	E		Engineer's place in automotive industry	502
Cylinder actions in gas and gasoline engines (Sir Dugald Clerk)	523	Economical size of farm	256	Engineer's place in industry	496
		Economy and performance demands (J G Vincent)	440, 507		
Cylinders		Economy		Engines	
Actions in gas and gasoline engines	523	Air-temperature regulation effects on fuel	119, 449	Acceleration and other tests	4
Characteristic turbulence in typical	584	Chassis design for fuel	167, 441	Air and exhaust supercompression	528
Effect of turbulence on flame propagation	579	Conflict between art and	366	Airplane	20
Flame movement at normal temperature and pressure	210	Elements of automobile fuel	543	Air standard efficiencies	525
Flame propagation and recompression	532	Fuel	482	Aluminum pistons	397
Flame the actual working fluid	525	Fuel and lubricant, in motorboats	47	Apparatus for testing	110
Gaseous explosions	531	Ideal engine	115	Application on the farm	13
Intake flow in manifolds and	282	Lubricant, in motorboats	47	Aviation lubricating oil	220
Knocking, pinking and detonating	526	Performance demands and	440, 507	Basic principles of the	107
Nature of flame movement in closed	209, 449	Size of farm	256	Canal-barge requirements	60
Residual turbulence	529	Education		Carburetion of alcohol	279
		American technical school	592	Causes and types of vibration	55
		Effect on agriculture	506	Characteristic turbulence in typical cylinders	584
		Value of an engineering	496	Charge quantity control	549
		Educational system of the Army	513	Commercial motorboats and Diesel	46
		Effect of compression and lubrication on current and voltage in battery	323	Comparative tests	112
		Effect of heat on maximum horsepower	8	Compression and the fuel problem	45
		Effect of long-period heating	154	Compression ratio and thermal efficiency of airplane	266, 424

Conditions necessary for proper use of alcohol	330	F	Hecter and aviation gasoline compared	168	
Cone clutch	350	Farm and community	17	High end-points	43
Constant-clearance pistons	104	Farm Power dinner addresses	588	Impossibility of atomization	26
Control	157	Farm Power meeting and dinner, S A E	277	Influence of air and, proportions upon engine efficiency and power	553
Critical speeds	54	Farms, economical, size of	256	Jacket-water temperature and intake-manifold pressure	8
Cylinder actions in gas and gasoline	523	Federal flying regulations	348	Lighting plant problem	41
Design	507	Federal Highway commission urged	338	Low-temperature distillation of coal	42
Desirable fuel and its preparation	3	FIELDER, R E, ON AIR-TEMPERATURE REGULATION EFFECTS ON FUEL ECONOMY	119, 449	Lubricant economy and	47
Detonation	241			Mechanical atomization at low temperatures	26
Developing an alcohol tractor	328	FIELDNER, A C, ON AUTOMOBILE EXHAUST GASES AND VEHICULAR-TUNNEL VENTILATION	295, 450	Mixing and vaporization	548
Development of airplane	336			Nature of knock	217
Developments in transmission	350	Final inspection of work	58	Notes on current research	131
Economy and performance demands	440, 507	Finance Committee, S A E, personnel	200	Oil for Diesel engines	220
Effect of heat on maximum horsepower	8	Financial aspects of aviation	568	Possible savings in automotive engines	3
Effect of temperature on voltage and current	322	Fits for cylindrical parts	230	Problem in relation to engineering viewpoint	101, 450
Effect of turbulence on flame propagation	579	Flame movement at normal temperature and pressure	210	Problems	99
Electric drive and the steam	49	Flame the actual working fluid	525	Research	200
First cost	46	Flame Movement		Research developments	448
Flame propagation and recompression	532	At normal temperature and pressure	210	Resume of Bureau of Standards study	450, 482
Flame the actual working fluid	525	Influence of temperature and pressure	213	Rich mixture for starting engines	495
Friction and power	232	Influence of turbulence	212	Third semi-annual gasoline survey	365
Fuel and lubricant economy	47	Flame Propagation		Uniform distribution	240
Fuel consumption in automotive	158	Effect of turbulence	579	Utilization of present automotive	26
Fuel oil for Diesel	220	Recompression	532	Vaporizer	105
Gas pressure transformation loss	552			Volumetric efficiency	122
Gaseous explosions	531	FORBES, KINGSTON, ON BODY ENGINEER AND HIS RELATION TO THE AUTOMOTIVE INDUSTRY	365, 436	G	
General details of construction of German submarine	411	Forms of engineering	504	Gas-electric generating plant, present status of isolated (Charles Froesch)	28
German submarine Diesel	410	Frames Division, S A E		Gas oil	52
High-speed, described	369	Activities	381	Gas pressure transformation loss	552
High-speed, of small piston displacement	368	Personnel	290, 294	Gaseous explosions	531
Ideal economy	115	FREEMAN, J R, JR, ON HIGH-TEMPERATURE PROPERTIES OF WHITE-METAL BEARING ALLOYS	149	Gases, automobile exhaust, and vehicular-tunnel ventilation	295, 450
Ignition from the engineman's viewpoint	307	French and Spanish coasts, landfalls on	315	Gasoline consumption by states in 1920	276
Influence of air and fuel proportions upon efficiency and power	553	Friction and power in engines	232	Gasoline production in November	269
Knocking, pinking, detonating	526	Friction in organization	10	Gasoline	
Largest internal-combustion, vessel	488	FROESCH, CHARLES, ON PRESENT STATUS OF THE ISOLATED GAS-ELECTRIC GENERATING PLANT	28	Consumption by states in 1920	276
Maneuvering gear on German submarine	413	Fuel and lubricant economy	47	Cracking processes	52
Mechanical efficiency of, with particular reference to part-load conditions	556	Fuel consumption in tractors	393	Cylinder actions in gas and, engines	523
Mechanical reversing gears	48	Fuel knock	558	Economy and performance demands	440, 507
Methods for measuring turbulence	585	Fuel oil for Diesel engines	220	Heat of combustion	550
Nature of flame movement in a closed cylinder	209, 449	Fuel problem in relation to engineering viewpoint (A L Nelson)	101, 450	Hecter and aviation, compared	168
New principle of suspension	54, 440	Fuel research	200	Physical meaning and measurement of volatility	146
Oil consumption in automotive	158	Fuel research developments (C F Kettering)	448	Production in November	269
Packard fuelizer	240	Fuel Session		Production statistics	118
Possible fuel savings in automotive	3	Program for annual meeting announced	2	Quantity and quality	51
Power required to drive the car at constant speed	102	Review of, at annual meeting	84	Requirements for full utilization of inherent volatility	147
Reclamation of used oil	233	Fuelizer		Specifications	219
Relative merits of large slow-speed and small high-speed	561	Hot-spots versus	242	Testing	219
Reliability of German submarine	414	Ignition for	242	Third semi-annual survey	365
Residual turbulence	529	Packard	240	Volatility of internal-combustion engine	145, 449
Reversibility	60	Fuels		Volumetric proportions of a combustible mixture	145
Rich mixture for starting	495	Air-temperature regulation effects on economy	119, 449	Gearbox design	352
Specific heat of flame	533	Autoignition	215	Gears	
Specification for aircraft and motor-cycle oil	220	Carburetion of alcohol	279, 328	Comparison of two types of worm	363
Specifications for high-speed	368	Characteristics and economy	482	Design of transmission and axle	390
Steam, and the electric drive	49	Charge quantity control	549	Determination of points of contact	360
Tests	328	Chassis design for economy	167, 441	Epicyclic	355
Tests at Ohio State University	255	Chemical phases	44	Maneuvering, German submarine engine	413
Two methods of producing turbulence	582	Compression and	45	Mechanical reversing	48
Uniform distribution with fuel	240	Conditions for proper use of alcohol	330	Research work needed	539
Universal-joint and gearbox design	352	Consumption in automotive engine	158	Straight-line generation	362
Volatility of internal-combustion, gasoline	145, 449	Consumption in tractors	393	Worm, design	358
Volumetric efficiency	122	Desirable, and its preparation for automotive engines	3	German Submarine, Diesel engine (Lieut-Com H C Gibson)	410
Water consumption in automotive	158	Elements of automobile, economy	543	GIBSON, H C, LIEUT-COM, ON GERMAN SUBMARINE, DIESEL ENGINE	410
Epicyclic gears	355	Heat of combustion	550		
Era of specialization	502				
Evaporation of crude oil	416				
Exhaust supercompression	528				
Exhibit at Columbus Tractor Show, S A E	281				
Exports of mineral oil	317				

INDEX TO VOLUME VIII

615

- GOLDBECK, A T, ON INVESTIGATIONS OF ROAD SUBGRADES 339, 426
 Government aid 569
 Grand Central Terminal 70
 Graphite lubricants 374
 Gun-mounts 377
 GUTHRIE, R G, ON RELATION OF RECOVERY TO THE FATIGUE OF METALS 65
- H**
 HALLETT, G E A, ON IGNITION FROM THE ENGINEMAN'S VIEWPOINT 307
 HANDBOOK, NEW S A E 346
 HANEY, CAPT J B, ON RECENT DEVELOPMENT OF ARTILLERY AUTOMOTIVE MATERIEL 375
 HANSCOM, C D, ON SOME EXPERIMENTS ON THICK WINGS WITH FLAPS 271, 380, 421
 Heat of combustion 550
- Heat**
 Effect of long-period 154
 Effect on maximum horsepower 8
 Of combustion 550
 Specific, of flame 533
 Heavy traffic pavements 480
 Hecter and aviation gasoline compared 168
 HEERGEIST, C A, ON CAN AUTOMOBILE BODY WEIGHT BE REDUCED? 285, 432
 Helicopter 126
- Helicopter**
 Airplane versus 126
 Possible line of thought 126
 HERSCHEL, DR W H, ON LUBRICATING OIL TESTS 481
 High-speed engines of small piston displacement (Louis Chevrolet and C W Van Ranst) 368
 High-temperature properties of white-metal bearing alloys (J R Freeman, Jr, and R W Woodward) 149
 Highway research 16
 Highway Road-Construction (W E Williams) 163, 425
 Highway traffic regulations 390, 562
 Highway transport 86
 Highway session, review of, at annual meeting 542
 Highways 542
- Highways and Roads**
 Automotive obligations toward development 161, 425
 Bearing value of soils 164
 Construction 163, 425
 Construction materials 64
 Correcting failures 164
 Drainage problem 341
 Federal Commission urged 338
 Foundation, drainage, surfacing and maintenance 238
 Good 542
 Heavy traffic pavements 480
 Impact 166
 Investigations of subgrades 339, 426
 Laboratory investigations of subgrades 342
 Minimum width of 20 ft for trunk 64
 Politics in the construction 238
 Problems 98
 Reinforcement 166
 Research 16
 Soft subgrades 340
 Tests at Camp Humphreys 340
 Traffic regulations 53
 Transport 390, 562
 Trunk 64
 Type of pavement 238
 Ultimate 166
 Variable factors in design 238, 425
 HILL, H H, ON PETROLEUM REFINING PROCESSES AND PROBLEMS 51
 HORNING, H L, ON TURBULENCE 579
- Horses**
 Comparative cost of tractors and Replacement of 488
 Hot-spots versus fuelizer 487
 House Committee, S A E, personnel 242
 House numbers changed, Detroit 200
 HOWARD, F A, ON VOLATILITY OF INTERNAL-COMBUSTION ENGINE GASOLINE 16
 Hysteresis loop, mechanical 145, 449
 Ignition 417
- Ignition**
 Battery and magneto similarities 572
 Characteristics with, on 327
 Engineman's viewpoint of 307
 Fuelizer 242
 Short and long sparks 574
 Spark lag 575
 Timing 557
 Underlying principles of electrical Illinois tractors, data on 487
 Impact 166
 Impact tests on trucks (E B Smith) 17
 Imports, crude rubber 270
 Improvements in motor-vehicle design 331
 Industrial depreciation 385
 Industrial depression 251
 Industrial employment analysis 390
 Industrial problems 98
 Industrial rehabilitation 252
 Industry, research the bond between the university and (A E White) 497
 Influence of air and fuel proportions upon engine efficiency and power 553
 Influence of temperature and pressure on flame propagation 213
 Influence of turbulence on flame movement 212
 Inspection and testing in interchangeable manufacture (Earle Buckingham) 57
- Inspection**
 Final, of work 58
 Shop, methods and personnel 57
 Instantaneous current and voltage values in a battery (G W Vinal and C L Snyder) 319
 Intake flow in manifolds and cylinders (P S Tice) 282
 International ball bearing standardization (R S Burnett) 577
 International civil aviation organization 418
 Investigations of road subgrades (A T Goldbeck) 339, 426
 Iron and Steel Division, S A E, personnel 200, 290, 603
- Isolated Electric Lighting Plant Division, S A E**
 Activities 381, 512
 Personnel 290, 603
 Isolated gas-electric generating plant, present status of the (Charles Froesch) 23
- J**
 Jacket-water temperature and intake-manifold pressure 8
 JAMES, W S, ON ELEMENTS OF AUTOMOBILE FUEL ECONOMY 543
 JARDINE, FRANK, ON ALUMINUM PISTONS 397
- JEHLE, FERDINAND, ON ALUMINUM PISTONS 397
 JOHNSON, A F, ON PASSENGER-AUTOMOBILE BODY-DESIGNING PROBLEMS 306, 432
 JONES, G W, ON AUTOMOBILE EXHAUST GASES AND VEHICULAR-TUNNEL VENTILATION 295, 450
- K**
Kerosene
 Prime white 219
 Quantities 52
 Kettering, C F, address 250
 KETTERING, C F, ON COOPERATION OF THE AUTOMOTIVE AND OIL INDUSTRIES 43
 KETTERING, C F, ON FUEL RESEARCH DEVELOPMENTS 448
 Knock, fuel 558
 Knocking, pinking, detonating in engines 526
- L**
 Laboratory investigations of subgrades 342
 LACY, V E, ON SOME INLAND WATERWAY TRANSPORTATION PROBLEMS 59
 Landfalls on the French and Spanish coasts 315
 Landing fields 567
 Landing in thick weather 568
 Langmuir's postulates occupy scientists 318
 Largest internal-combustion engine vessel 488
 Lead, effect of small percentages of 154
 LEWIS, H A, ON NATURE OF FLAME MOVEMENT IN A CLOSED CYLINDER 209, 449
 Liberty aero and motorcycle oil 220
- Lighting Division, S A E**
 Activities 512
 Personnel 290, 603
- Lighting Plants**
 Characteristics of the ideal farm 33
 Common types of 29
 Controlling devices 39
 Design factors 35
 Fuels 41
 Service 41
 Storage batteries 37
 Thirty-two and 110-volt systems compared 40
 Voltage regulation 38
 LOENING, G C, ON DESIGN REQUIREMENTS OF COMMERCIAL AVIATION 135, 419
 Long-distance flight 208
 Looping the North Atlantic in the Typhoon (W W Nutting) 314
 Low-temperature distillation of coal 42
 Lubricants Division, S A E, personnel 290
- Lubricants**
 Aviation engine 220
 Fuel and, economy 47
 Graphite 369
 Heavy greases 167
 Liberty aero and motorcycle 220
 Oil tests 481
 Oils 52, 220
 Transmission and cup grease 221
 Lubricating oil tests (Dr W H Herschel) 481
 Lubricating oils 220
- Lubrication**
 Effect of compression and on current and voltage in battery 323
 Oil for low speeds and heavy loads 415

M		Miscellaneous Division, S A E		Typhoon receives two knockdowns 316	
Machine tool, what is a	346	Report at annual meeting	179	Navy pigeons in aviation	291
Machine tools, modern	202	Result of letter ballot	382	Nebraska tractor tests	278, 391
Machinery in agriculture	506	Mixing and vaporization	548	Need for greater service accessibility in car design (T F Cullen)	257, 598
MAGRUDER, W T, ON NEED FOR RESEARCHES ON AUTOMOBILE PARTS	255, 439	Mixtures, volumetric proportions of combustible	145	Need for researches on automobile parts (W T Magruder)	255, 439
Maintenance		MOCK, F C, ON UTILIZATION OF PRESENT AUTOMOTIVE FUEL	26	NELSON, A L, ON FUEL PROBLEM IN RELATION TO ENGINEERING VIEWPOINT	101, 450
Motor-vehicle problems	333	Modern machine tools	202	New principle of engine suspension (S E Slocum)	54, 440
Tractor	376	Money and credit	252	New S A E Handbook	346
Manifold		MOSKOVICS, F E, ON ENGINEERS PLACE IN AUTOMOTIVE INDUSTRY	504	Non-Ferrous Metals Division, S A E	
Desired temperature	121	Motions, photographic recording of small	50	Activities	381, 607
Intake flow in, and cylinders	282	Motorboat Division, S A E, personnel	290	Personnel	200, 291, 294, 603
Jacket-water temperature and intake, pressure	8	Motorboat meeting, S A E	2	Report at annual meeting	181
Manometer in wind tunnel	493	Motorboat standardization from the naval-architect's viewpoint (William J Deed)	116	Result of letter ballot	382
March 1921 issue of data sheets	542	Motorboats		NORTON, F H, ON NATIONAL ADVISORY COMMITTEE'S 5-Ft WIND TUNNEL	489
MARTIN, G L, ON AERIAL TRANSPORTATION AS A BUSINESS PROPOSITION	347	Commercial, and the Diesel engine	46	Notes on current fuel research	131
MARTIN, MAJOR H S, ON RECENT PROGRESS IN MILITARY AVIATION	335	Standardization from the naval-architect's viewpoint	116	Number of fatal automobile accidents	256
Mechanical efficiency of engines with particular reference to part-load conditions	556	Motor cultivator	505	NUTTING, W W, ON LOOPING THE NORTH ATLANTIC IN THE TYPHOON	314
Meetings		Motorcycle Division, S A E		O	
Annual S A E	1	Personnel	200, 291	OCKSREIDER, N J, ON ENGINEERING ANALYSIS APPLIED TO TRUCK SELLING	600
Annual S A E reviewed	75	Report at annual meeting	181	Officers, S A E, for 1921	79, 88
Chicago S A E	10, 205	Result of letter ballot	382	Oil-burning vessels	291
Cleveland Tire	14	Motorcycles, Liberty aero and oil	220	Oil pipe lines	27
Columbus S A E	10	Motor vehicles per capita	330	Oil pools	10
Farm Power, S A E	277	Motor-vehicle safety increasing	486	Oils for powerplants	415
Motorboat, S A E	2	Motor Vehicles		Oils	
Proposed Fall Section	605	Acceleration test of steam truck	159	Aviation engine lubricating	220
S A E Council, December, 1920	11	Air-temperature regulation effects on fuel economy	449	Consumption in automotive engine	158
January, 1921	200	Application of steam power to truck	155, 601	Cooperation of the automotive and oil industries	43
February, 1921	208	Average composition of exhaust gas and completeness of combustion	302	Crude	56
March, 1921	294	Care and maintenance of	331, 602	Crude production in 1920	409
April, 1921	509, 603	Engineering analysis applied to selling	600	December refinery statistics	367
Summer, S A E	265, 293	Exhaust gases and vehicular-tunnel ventilation	295	Dilution of crankcase	231
Summer reviewed	517	Future development	162	Evaporation of crude	416
Meetings Committee, S A E		Handling repairs	334	Exports of mineral	317
Personnel	200	Highway transport	390, 562	Fuel for Diesel engines	220
Report	294	Maintenance practice	333	Gas	52
Members, addresses of, desired	148	Needed improvements in design	331	Liberty aero and motorcycle	220
Membership		Per capita	330	Lubricating	52, 220
Council action on	208, 294	Percentage of carbon dioxide in exhaust gas and completeness of combustion	304	Lubricating, for low speeds and heavy loads	415
Increase of	95	Remedies for accidents	486	Lubricating tests	481
Report at annual meeting	77	Road construction and	390	Pipe lines	27
Report at December council meeting	12	Safety increasing	486	Pools	10
Report at April council meeting	603	Service requirements	507	Powerplants	415
MERCER, G J, ON STYLE IN AUTOMOBILE BODIES	123, 434	Simplification of product	249	Reclamation method	235
Merchant marine, American	16	Springing of chassis	256	Reclamation of used engine	233
Metal bodies and construction features	404	Tests on exhaust gases	295	Shale	70
Metal fatigue under repeated stresses	417	Tires	507	Tank cars	50
Metals		Museum		Operation temperatures of pistons	400
Another theory of recoverance	67	Engineering	69	Ordnance museum	126
Fatigue	66	Ordance	126	Outbound voyage of Typhoon	314
Fatigue under repeated stresses	417	N		P	
Mechanical hysteresis loop	417	National Advisory Committee's 5-ft wind tunnel (F H Norton)	489	Packard fuelizer (L M Woolson)	240
Relation of recoverance to fatigue	65	National Screw Thread Commission report on standards	511	Paper currency, world debt and	229
Tests for fatigue of metals	418	Nature of flame movement in a closed cylinder (C A Woodbury, H A Lewis and A T Canby)	209, 449	PARISH, W F, ON DILUTION OF CRANKCASE OIL	231
Metering characteristics of six stock carbureters	555	Nature of fuel knock	217	Parts and Fittings Division, S A E	
Methods and apparatus used in obtaining current and voltage values in a battery	319	Navigation		Activities	512, 607
Methods of computing results of tests on automobile exhaust gases	296	Looping the North Atlantic in the Typhoon	314	Personnel	200, 291, 603
Micarta and steel propellers	471	Outbound voyage in Typhoon	314	Subjects assigned	604
Milestone of automotive progress	56	Passenger Car Body Division, S A E		Passenger-automobile body-designing problems (A F Johnson)	306, 432
Military aviation, recent progress in	335	Activities		381, 513	
Minimum width for trunk highways	64	Personnel		291, 294	
Mining of shale	63	Subjects assigned		604	

INDEX TO VOLUME VIII

617

Pavement, heavy traffic	480	Aeronautic design	419, 467	<i>Research Department, S A E</i>	
Percentage of carbon dioxide in exhaust gas and completeness of combustion	304	Micarta and steel	471	Formation	270
Petroleum from shale	63	Reversible	473	Plans discussed	294, 603
Petroleum refining processes and problems (H H Hill)	51	Stresses	476	Scope of work	603
		Testing	477	Research work on gears needed	539
		Theories and aerodynamics	468	Results of tests of automobile exhaust gases	298
<i>Petroleum</i>		Prosperity, dangers of	253	Resumé of Bureau of Standards fuel study (H C Dickinson)	450, 482
Refining processes and problems	51	Publication Committee, S A E, personnel	200	Reversible propellers	473
Shale as a source of	63	Publications of interest	384, 509	"Rich" mixture for starting engine	495
Standardization of specifications	219	Publications, S A E, prices	208		
World's production in 1920	349	Pulitzer trophy race	13		
		PUTNAM, A L, ON CHASSIS DESIGN FOR FUEL ECONOMY	167, 441		
Photographic recording of small motions	50			<i>Roads and Highways</i>	
Physical meaning and measurement of volatility	146			Automotive obligations toward development	161, 425
Pigeons in naval aviation	291	<i>Radiator Division, S A E</i>		Bearing value of soils	164
Pilots, American aeronautic	221	Personnel	200, 291, 603	Construction	163, 425
		Report at annual meeting	187	Construction materials	64
		Result of letter ballot	382	Correcting failures	164
		Radio control of ships	587	Drainage problem	341
		Radio telephone	58	Federal Commission urged	338
<i>Pistons</i>				Foundation, drainage, surfacing and maintenance	238
Aluminum	397			Good	542
Clearance required	402	<i>Railroads</i>		Heavy traffic pavements	480
Constant-clearance aluminum	104	Electrification	122	Highway research	16
Designs of	398	Tank cars	50	Impact	166
Duties of a	397	Valuation	69	Investigations of subgrades	339, 426
High-speed engines of small displacement	368			Laboratory investigations of subgrades	342
Higher compression ratios	103	Recent advances in aviation (Col T H Bane)	18	Minimum width of 20 ft for trunk	64
Operation temperatures of	400	Recent development of artillery automotive material (Capt J B Haney)	375	Politics in the construction	238
Plowing speeds	277	Recent progress in military aviation (Major H S Martin)	335	Problems	98
Flows	62	Reclamation of used engine oil	233	Reinforcement	166
		Recovery to the fatigue of metals, relation of (R G Guthrie)	65	Soft subgrades	340
<i>Plywood</i>				Tests at Camp Humphreys	340
Comparison of ordinary wood with	480	<i>Recovery</i>		Traffic regulations	53
Varying the number of plies in	486	Relation of, to fatigue of metals	65	Transport	390, 562
POMEROY, L H, ON CONSEQUENTIAL ADVANTAGES OF WEIGHT REDUCTION	396	Theory of	67	Trunk	64
Possible fuel savings in automotive engines (H C Dickinson and S W Sparrow)	3	Reinforcement for roads	166	Type of pavement	238
Possibilities for improvement in current automobile models	264	Relation of recovery to the fatigue of metals (R G Guthrie)	65	Ultimate	166
Possible improvements in automobile design suggested by survey	259	Relative motion of automobile parts	167	Variable factors in design	238, 425
Power on the farm	13	Reliability of air transportation	347	Roberts, George E, address	251
Power transmission efficiency	552	Repairs to motor vehicles	334	ROSA, E B, ON SCIENTIFIC WORK OF THE GOVERNMENT	69
				Rubber, crude, imports	270
<i>Power</i>		<i>Reports</i>		<i>S A E</i>	
Application of steam power to an automotive truck	155, 601	Council at annual meeting	78	Activities of Sections	71, 95, 201, 230, 380, 510, 605
Influence of air and fuel proportions upon engine	553	Meetings Committee at annual meeting	79	Aeronautical session at annual meeting	76
Required for canal barges	61	Membership at annual meeting	77	Annual meeting	1
Water	17, 118	Membership at April council meeting	603	Annual meeting reviewed	75
Water development	416	National Screw Thread Commission	511	Body engineering session at annual meeting	80
Powerplant for wind tunnel	490	Sections Committee at annual meeting	79	Chassis design session at annual meeting	81
Powerplants, oils for	415	Standards Committee at annual meeting	79	Chicago meeting	10
Present industrial situation and outlook	253	Treasurer's at annual meeting	77	Chicago meeting and dinner	205
Present status of the isolated gas-electric generating plant (Charles Froesch)	28	Treasurer's at April council meeting	603	Columbus meeting	10
Pressure, influence on flame propagation	213	Requirements for full utilization of inherent volatility	147	Commercial aviation session at annual meeting	82
Prices of S A E publications	208	Research department of the Society	270	Cooperation with other organizations	96
		Research the bond between the university and industry (A E White)	497	Council and staff	96
				Council meetings:	
<i>Production</i>		<i>Research</i>		December, 1920	11
Crude oil in 1920	409	Action at Council meeting	208	January, 1921	200
December refinery statistics	367	Bond between the university and industry	497	February, 1921	208
Gasoline in November	269	Electromagnetic theory	318	March, 1921	294
Gasoline statistics	118	Fuel	200	April, 1921	509, 603
World's 1920 petroleum	349	Fuel developments	448	Council report at annual meeting	78
Products, salability of	502	Hesitation to encourage	497	Discussion of annual meeting papers	419
		Need for, on automobile parts	255, 439	Discussion of Chicago truck and tractor meeting papers	598
		Notes on current fuel	131	Exhibit at the Columbus tractor show	281
		Situation in Michigan	498	Farm power meeting and dinner	277
		Work on gears needed	539	Fuel session at annual meeting	84
<i>Propellers</i>				Highway session at annual meeting	86
Adjustable-pitch and reversible	473	Research Committee, S A E personnel	200	Membership report at annual meeting	77
				Motorboat meeting	2
				New HANDBOOK	346

Officers for 1921	79, 88	SNYDER, C L, ON INSTANTANEOUS CURRENT AND VOLTAGE VALUES IN A BATTERY	319	<i>Stationary Engine Division, S A E</i>	
Prices of publications	208			Activities	381, 513
Problems of	97			Personnel	200, 291
Research department	270			Subjects assigned	604
Research department plans	294	<i>Soils</i>		Status of car design for service accessibility	257
Sections activities		Bearing power	164	Steel propellers	471
71, 95, 201, 230, 380, 510		Bearing value test	343	Steel, valve specifications	513
Semi-annual meeting	208	Drainage investigations	344	STONE, P E, ON AUTOMOBILE BODY CONSTRUCTION	404
Standards committee, 1921	288	Drainage problem	341	Storage batteries for lighting plants	37
Summer meeting at West Baden		Some considerations in tractor service (J C Thorpe)	540, 598	Storage Battery Division, S A E, personnel	291
265, 293, 517		Some experiments on thick wings with flaps (C D Hanscom)	271, 380, 421	STRAUB, A A, ON AUTOMOBILE EXHAUST GASES AND VEHICULAR TUNNEL-VENTILATION	295, 450
Summer meeting reviewed		Some inland waterway transportation problems (V E Lacy)	59	Street traffic in London and New York	10
Treasurer's report at annual meeting	77	Spanish coasts, landfalls on French and		STREETT, FIRST-LIEUT ST CLAIR, ON ALASKAN FLYING EXPEDITION	222
Treasurer's report at December council meeting	11	Spark lag	315, 575		
Treasurer's report at April council meeting	603	<i>Sparks</i>			
Truck and tractor meeting at Chicago	205	Lag	575	<i>Stresses</i>	
Safe and reliable airplane service	565	Short and long	574	Airplane, analysis of	53
<i>Safety</i>		SPARROW, S W, ON COMPRESSION RATIO AND THERMAL EFFICIENCY OF AIR-PLANE ENGINES	266, 424	Metal fatigue under repeated	417
Lessons for automobile drivers	12	SPARROW, S W, ON POSSIBLE FUEL SAVINGS IN AUTOMOTIVE ENGINES	3	Propeller	476
Motor vehicle increasing	486	Specialization, era of	502	Style in automobile bodies (G J Mercer)	123, 434
Salability of automotive products	503	Specific heat of flame	533	<i>Subgrades</i>	
SCARRATT, A W, ON CARBURETION OF ALCOHOL	328	<i>Specifications</i>		Drainage investigations	344
<i>Schools</i>		Cup grease	221	Drainage problem	341
American technical	592	Gasoline	219	Investigations of road	339, 426
Body draftsmanship	437	Engine high-speed	368	Laboratory investigations	342
Scientific work of the Government (E B Rosa)	69	Kerosene	219	Soft	340
SCOTT, L L, ON APPLICATION OF STEAM POWER TO AN AUTOMOTIVE TRUCK	155, 601	Standardization of petroleum	219	Submarine Diesel engine, German (Lieut-Com H C Gibson)	410
<i>Screw-Thread Division, S A E</i>		Transmission lubricant	221	Suggested rating rule for racing cars (H M Crane)	118, 440
Activities	381	Valve-steel	513	Summer Meeting, S A E	265
Personnel	291	<i>Speeds</i>		<i>Summer Meeting, S A E</i>	
Subjects assigned	604	Critical, of engines	54	Announced	293
Screw threads, standards	511	Engine critical	54	Recreation	293
Seasoning of wood, proper	404	Inherent value of	595	Reviewed	517
Sectional Committee on Gears of the American Engineering Standards Committee, representative	294	Flowing	277	Sports	390
<i>Sections, S A E</i>		SPICER, C W, ON TORSIONAL STRENGTH OF MULTIPLE-SPLINED SHAFTS	129, 440	Technical sessions	293, 389
Activities	71, 95, 201, 230, 380, 510, 605	Springing of chassis	256	Tentative program	389
Financial support	604	Springs Division, S A E, personnel	200, 291	Transportation arrangements	294, 389
Dayton established	208	Stackhouse, W H, address	590	Superpower survey	122
Proposed Fall meetings	605	<i>Standardization</i>			
Report at annual meeting	79	Ball bearing, international	577	<i>Temperatures</i>	
<i>Semi-Annual Meeting, S A E</i>		Current work	381, 512, 606	Desired manifold	121
Announced	208	Development of tire	14	Effect of engine on voltage and current	322
Reviewed	517	Motorboat from the naval-architect's viewpoint	116	High, properties of white-metal bearing alloys	149
Service for lighting plants	41	Motorboats	116	Influence on flame propagation	213
Shafts, torsional strength of multiple-splined	129, 440	National Screw Thread Commission reports	511	Piston	400
Shale oil	70	Petroleum specifications	219	Variation in street	121
<i>Shale</i>		Result of letter ballot on standards	382	<i>Tests</i>	
Form of carbon in	63	Rules governing, S A E	288	Acceleration of engines and other	4
Mining and distillation	63	<i>Standards Committee, S A E</i>		Acceleration of steam truck	159
Oil	70	1921	288	Airplanes in wind tunnel	495
Petroleum from	63	Appointments to membership	288	Apparatus for engine	110
<i>Ships</i>		Data sheets, March, 1921	542	Apparatus used for metal	150
Largest internal-combustion engine	488	Expenditures	289	Bearing value of soil	343
Oil-burning	291	Functions	288	Bureau of Standards fuel study, resumé of	450, 482
Radio control of	587	Meetings	289	Comparative engine	112
Shop inspection methods and personnel	57	Organization	288	Comparative, with and without thermostat	120
Short and long sparks	574	Personnel	200, 288, 290		
SJOOREN, O W, ON NEBRASKA TRACTOR TESTS	391	Procedure of business	289		
SLOCUM, S E, ON NEW PRINCIPLE OF ENGINE SUSPENSION	54, 440	Publicity	289		
SMITH, E B, ON IMPACT TESTS ON TRUCKS	17	Records of meetings	289		
SMITH, N J, ON CARE AND MAINTENANCE OF MOTOR TRUCKS	331, 602	Report at annual meeting	79, 169		
		Report at council meeting	208		
		Stationery	289		
		Work in progress	289		
		Work of	95		
		Static longitudinal stability of airplanes	128		

INDEX TO VOLUME VIII

619

Current and voltage values in a battery	319	Fuel consumption	393	Trunk highways	64
Elevated temperature Brinell	152	Gun-mounts	377	Tunnel, National Advisory Committee's	
Elevated-temperature compression of alloys	151	Heavy	376	5-ft wind (F H Norton)	489
Engine	328	Nebraska, tests	278, 391	Turbulence (H L Horning)	579
Engine at Ohio State University	255	Number of days used	487		
Equipment used in Nebraska tractor	391	Repairs	488	Turbulence	
Exhaust gases from automobiles	295	Replacement of horses	487	Characteristic in typical cylinders	584
Fatigue of metals being conducted	418	Results of tests	392	Effect on flame propagation	579
Flame movement at normal temperature and pressure	210	Some considerations in service	540	Historical	579
Four master wing sections	271	Supply and maintenance	376	Influence of, on flame movement	212
Friction and power in engine	232	Trend of design	279	Methods for measuring	585
Gasoline	219	Weak spots	394	Residual	529
Impact on trucks	17	Trade balance	56	Two methods of producing	582
Inspection and, in interchangeable manufacture	57	Trade, United States foreign	390	Two classes of aerial service	347
Lubricating oil	481			Typhoon received two knockdowns	316
Nebraska tractor	278, 391	Traffic and Transportation			
Petroleum products	219	Aerial, as a business proposition	347		
Piston temperature	402	Aerial transportation of the immediate future	423, 593	U	
Power	256	Air and the business man	563	Ultimate highway	166
Preliminary metal	151	Commercial aviation in the eastern hemisphere	422	Underlying principles of electrical ignition (B F Bailey)	570
Preparation of specimens of metal	150	Conference on regulation	305	United States Air Mail survey flight	134
Propeller	477	Development of commercial aerial service	349	United States foreign trade	390
Results of automobile exhaust gases	298	Different countries	605	Universal-joint and gearbox design	352
Results of tractor	392	Fundamental factors of aerial	593	UPSON, R H, ON AERIAL TRANSPORTATION OF THE IMMEDIATE FUTURE	423, 593
Roads at Camp Humphreys	340	Grand Central Terminal	70	Utilization of present automotive fuel (F C Mock)	26
Thick wings with flaps	271	Highway	390, 562	UTZ, J G, ON ENGINEERS PLACE IN AUTOMOTIVE INDUSTRY	504
Torsional strength of multiple-splined shafts	129, 440	Highway traffic regulations	53		
		Impediments to commercial air	565	V	
Thermostat		Inherent value of speed	595	Valuation of railroads	69
Description of	120	Pavements, heavy	480	Valve-steel specifications	513
Comparative tests	120	Proposed remedies for accidents	486	VAN RANST, C W, ON HIGH-SPEED ENGINES OF SMALL PISTON DISPLACEMENT	368
Third semi-annual gasoline survey	365	Reliability of air service	347	Vaporizer, fuel	105
THORPE, J C, ON SOME CONSIDERATIONS IN TRACTOR SERVICE	540, 598	Safety lessons for automobile drivers	12	Variable factors in highway design (H E Breed)	238, 425
Threaded Parts Division, S A E, personnel	200	Some inland and waterway problems	59	Variation in voltage and current	320
TICE, P S, ON INTAKE FLOW IN MANIFOLDS AND CYLINDERS	282	Street traffic in London and New York	10	Variations in street temperatures	121
Time-value cargo classification	596	Time-value cargo classification	596	Varying the number of plies in plywood	486
Timing, ignition	557	Transmission lubricant and cup grease	221		
		Transmission lubricant specification	221	Vehicular tunnel, automobile exhaust gases and ventilation	295, 450
Tire and Rim Division, S A E		Transmission Division, S A E		Ventilation, automobile exhaust gases and vehicular-tunnel	295, 450
Report at annual meeting	189	Activities	382		
Result of letter ballot	382	Personnel	291	Vibrations	
		Subjects assigned	604	Causes and types of engine	55
Tires				Elimination of, due to synchronism	55
Change in sizes	14	Transmissions		VINAL, G W, ON INSTANTANEOUS CURRENT AND VOLTAGE VALUES IN A BATTERY	319
Cleveland meeting	14	Design of, and axle gears	390	VINCENT, J G, ON ECONOMY AND PERFORMANCE DEMANDS	440, 507
Development of standards	14	Developments in	350	VINCENT, J G, ON ENGINEER'S PLACE IN AUTOMOTIVE INDUSTRY	505
Effect of sizes	168	Epicyclic gears	355	Vincent, J G, presidential address	95
Interchanging front and rear pneumatic, on trucks	15	Gearbox design	352	Volatility of internal-combustion engine gasoline (F A Howard)	145, 449
Limits for oversize	15	Power efficiency	552		
Metric sizes	15	Rear-axle design	357	Volatility	
Motor vehicles	507	Universal-joint	352	Measurement of	146
Tools, modern machine	202	Transportation arrangements for summer meeting	294, 389	Physical meaning	146
Torque curves	157	Transportation in different countries	605	Requirements for full utilization of inherent	146
Torsional strength of multiple-splined shafts (C W Spicer)	129, 440	Treasurer's Report, S A E		Voltage regulation in lighting plants	38
		At annual meeting	77	Voltage values in a battery, instantaneous current and (G W Vinal and C L Snyder)	319
Tractor Division, S A E		At April council meeting	603	Volumetric efficiency	122
Personnel	200, 291	At December council meeting	11	Volumetric proportions of a combustible mixture	145
Report at annual meeting	189	Truck and tractor meeting at Chicago	205		
Result of letter ballot	382	Truck Division, S A E			
Subjects assigned	604	Activities	382	W	
Tractor on corn-belt farms	511	Personnel	200, 291, 294	WALKER, K F, ON AUTOMOTIVE RADIATORS	127
Tractor show, S A E exhibit at Columbus	281	Report at annual meeting	189, 191	War and commerce	94
		Result of letter ballot	382	War, effect on agriculture	506
Tractors		Subjects assigned	12	WARNER, E P, ON COMMERCIAL AVIATION IN THE EASTERN HEMISPHERE	422
Anti-freezing solutions	277				
Belt work	277	Trucks			
Commercial aspect	541	Acceleration test of steam	159		
Comparative cost of horses and	488	Application of steam power to	155, 601		
Corn-belt farms	511	Engineering analysis applied to selling	600		
Data on Illinois	487	Impact tests on	17		
Developing an alcohol engine	328	Interchanging front and rear pneumatic tires on	15		
Equipment used in tests	391				

Water consumption in an automotive engine	158	WILLIAMS, W. E., ON HIGHWAY-ROAD CONSTRUCTION	163, 425	Four master sections	271
Water power	17, 118			New designs	274
Water-power development	416				
Weather and navigation aids	567	<i>Wind Tunnel</i>		<i>Wood</i>	
<i>Weight</i>		Airplanes tested	495	Comparison of ordinary, with plywood	480
Can automobile body be reduced	285, 432	Balance used	491	Seasoning for automobile bodies	404
Consequential advantages of reduction in automobile	396	Building and	489	WOODBURY, C. A., ON NATURE OF FLAME MOVEMENT IN A CLOSED CYLINDER	209, 449
Limitation in automobile-body reduction	286	Manometer in	493	WOODWARD, R. W., ON HIGH-TEMPERATURE PROPERTIES OF WHITE-METAL BEARING ALLOYS	149
West Baden meeting	389	Power plant	490	WOOLSON, L. M., ON PACKARD FUELIZER	240
What is a machine tool	346	Special apparatus used	492	World debt and paper currency	229
WHITE, A. E., ON RESEARCH THE BOND BETWEEN THE UNIVERSITY AND INDUSTRY	497	<i>Wings</i>		World's production of petroleum in 1920	349
		Experiments on thick, with flaps	271, 380, 421	Worm-gear design	358



